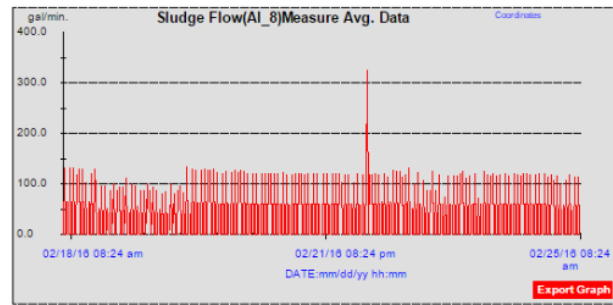
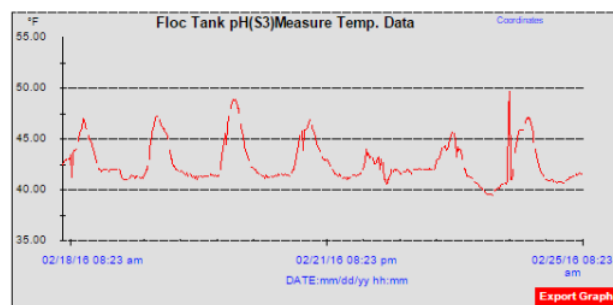
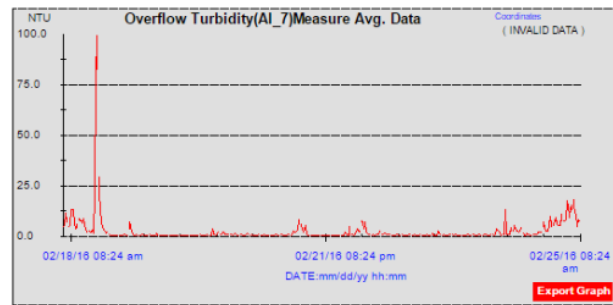
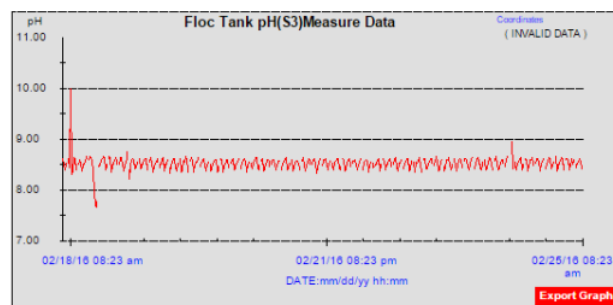
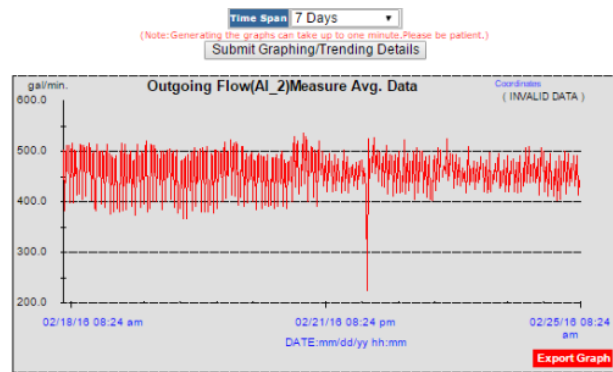
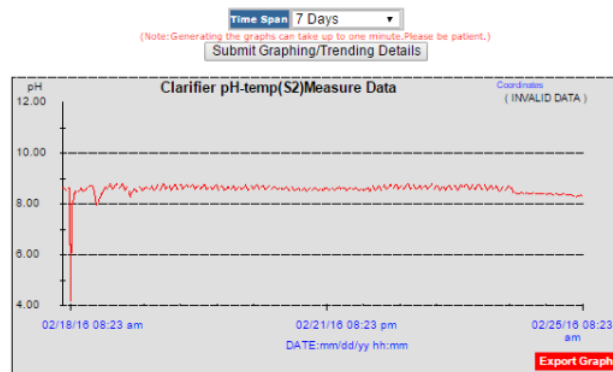


MEMORANDUM

DATE:	February 22 nd , 2016
FROM:	Joe Harrington
SUBJECT:	February Weekly Progress Report @ Gold King
TO:	Steven Way

Project: Gold King Interim Water Treatment Plant (IWTP)**Reporting Period:** Feb 15 – Feb 22**Location:** Gladstone, Colorado**Report No.:** 9**Prepared for:** Emergency Response Unit – US EPA Region 8**I. General Operations Summary:****IWTS Function/Upsets**

- The following graphs provide trending information collected by datalogging equipment during the previous 7 days. These dataloggers collect control information from the Lime Circuit (left) and Flow Circuit (right) Programmable Logic Controllers (PLCs) at the Gold King IWTP. Over the reporting period (2/15/16 – 2/22/16 inclusive) Alexco treated 4.69 million gallons at an average flow rate of 465 gpm with all discharged treated water leaving the 12" HDPE pipeline. pH and turbidity (the two key indicators of real-time quality) show no major upsets to the plant operation during the past 7 days.



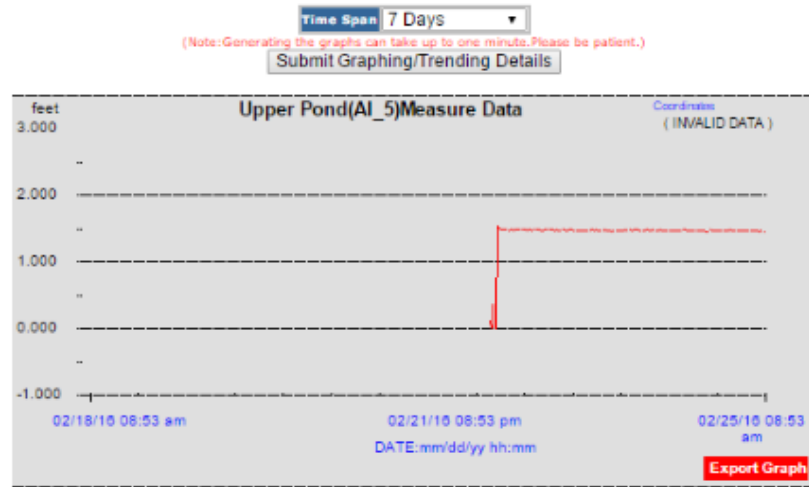
- Please note: Several days each week, the Alexco operators check the pH at both the floc tank and clarifier discharge. During this time, the probe is placed in vinegar (acid), and three pH buffers – 4, 7, and 10. While the probe is in the buffer, the datalogger may captured one of those points for tracking purposes, which explains the frequent periodic (daily) pH spikes seen on the graph.
- There was a turbidity spike on 2/18/2016 when the operators flushed the turbidimeter stilling-well and the supply tubing.
- There was a drop in Outgoing Flow and a spike on Sludge Flow on 2/21/2016 when the operators were cleaning out the settling tubes on the clarifier and left the pneumatic valve open for an extended period of time sending the majority of the clarifier's sludge blanket to the bags.

Communication System Function Status

- No issues –reliable operations during the reporting period.

Facility or System Related Work, including Repairs & Completions

- Alexco installed solar-paneled/wireless pressure transducer (see Figure 2) in the upper lined pond on 2/22/2016. This new system will allow for remote monitoring of the pond levels. Since installation, the head on the pressure transducer has been steady at 1.5 feet.



II. Identified Problems, Causes, and Solutions (Planned or Implemented)

- **Electrical Permit Closure** – Alexco has asked Precision Electric and Durango Electric to provide a fixed cost quote to make final updates/changes to the IWTP based on an e-mail from Don Nowlin dated 2/22/2016. This e-mail lists the following issues:
 - Cable tray shall be listed
 - Cords/cables installed in tray shall be listed for such use
 - Cords shall be installed with strain relief
 - Cords/cables shall be protected/secured between tray and equipment
- **Spring Melt Contingency Planning:**
 - **Thickener** – Alexco has purchased a thickener tank to be installed downstream of the clarifier. Alexco is currently sending roughly 30 to 55 gpm of sludge at 1% solids from the clarifier to the bags. With this thickener, the discharge rate will be reduced to between 5 to 15 gpm with an increase in solids to 3% to 5% solids. However, recent changes to the plant (the sludge recirculation system) may delay the implementation of this improvement until closer to the onset of spring melt.
 - **Additional Bags** – Alexco has purchased additional textile bags (2X 125' x 45 and 1X 90' x 45') that are currently located at site and can contain up to 2,000 CY of sludge. Alexco is planning to install one or two of these additional textile bags if needed prior to or during spring melt depending on access and snow cover. These new bags should demonstrate improved performance because of the improved quality of floc mixture and consistent dosing rate.
 - **Planning for reagent delivery to contingency ponds during high flow events** – Alexco is preparing for emergency delivery of flocculant and lime and / or caustic solutions to the inlet to the pond system. Conceptual plan is for splitting the flow so that 900 – 1000 GPM is delivered bypassing the ponds and directly to the plant, while the remaining flow passes through the ponds and spills directly into Cement Creek.
- **Flow Meter** – Alexco plans to replace the current battery operated 2" magmeter on the pumpback system with a magmeter capable of interfacing with the Webmaster, allowing for remote monitoring of the flow rate.

III. System Inspections – Specific elements inspected and finding

- The QA/QC box plot analysis of the testing results indicates that the probes deviate beyond acceptable threshold limits around 4 days without cleaning, therefore cleaning has been conducted 3X weekly and will continue at this frequency unless the box plot analysis indicates more frequent cleaning is necessary. Box plot analysis is conducted monthly and reviewed by the Project Director. The Project Director will determine if the replacement of the probes is necessary from inspection of the testing results and if the cleaning and calibration schedule is sufficient. So far two probes have been replaced since November.

III. Site Status

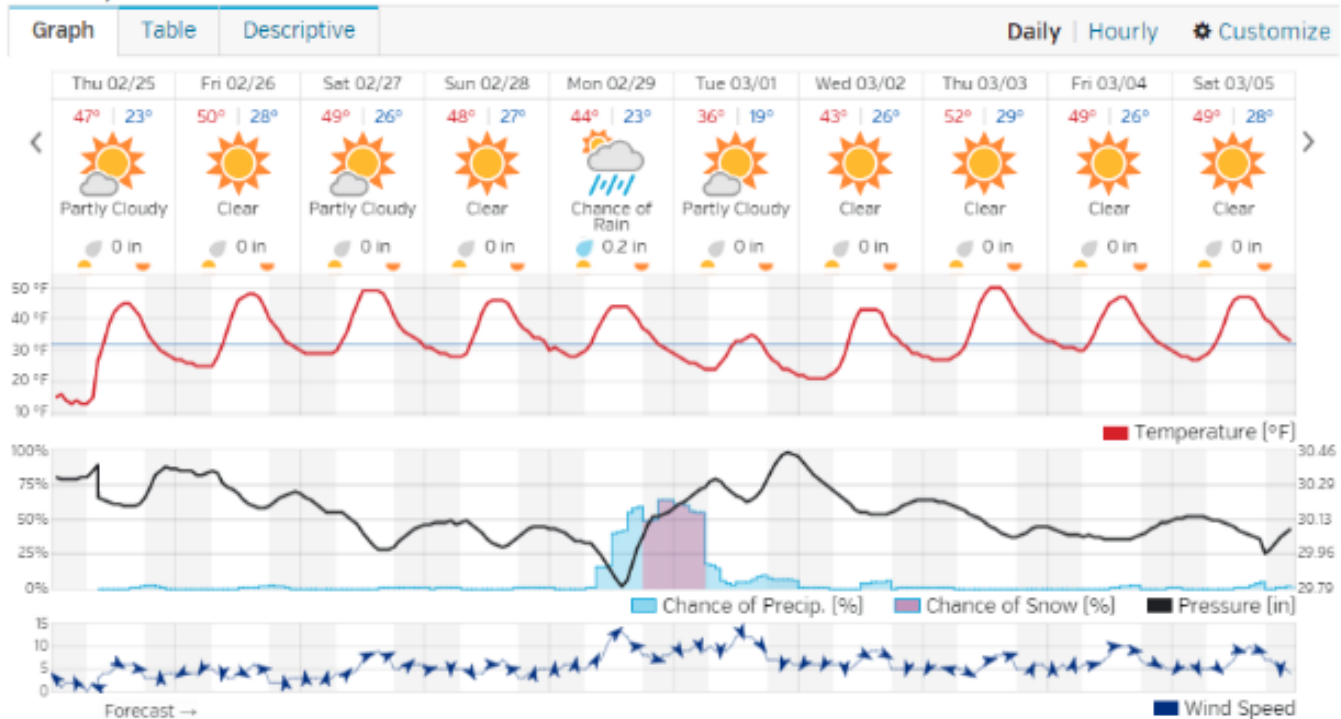
Personnel and equipment onsite

- Alexco currently employs three FTEs who live in Silverton that oversee operations at Gold King IWTP.
- Alexco recently hired a Mining Engineer (Mark Lawson) who lives in Silverton. In this role, Mark will report directly to Eric Lancaster and was hired because of his analytical skills and his ability to work with modern electronic devices (smart phones, computers, ipads, etc.).

Weather conditions

- Weather Underground Report for Silverton, CO (2/25/2016 – 3/05/2016)

10-Day Weather Forecast



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Site Images



Figure 1: Site from the main road – Taken on 2/22/2016



Figure 2: Solar panel and pressure transducer – Taken on 2/22/2016



Figure 3: Photo within the plant – Taken on 2/22/2016



Figure 4: Photo of bags from the upper road after 12" of new snow – Taken on 2/23/2016



Figure 5: Two valves were added at the flocculation tank allowing pumpback sludge to be injected at the flash tank or at the Reactor Tank. The connection to the Reactor Tank will be completed on 3/8/16. – Taken on 2/22/2016

